

REMARKS

## Claim 22

New claim 22 is patentable over the combination of DUNCAN, GARNETT and ENG for the reasons cited below.

1. Claim 22 recites a method for enabling a user to edit a netlist describing a schematic diagram including a step of generating a display of a topology display mode schematic diagram showing the shape and relative positions of components but without showing any connection lines. The Examiner correctly points out that DUNCAN fails to teach the topology display mode for a schematic diagram. The Examiner cites GARNETT as teaching a topology display mode wherein a schematic diagram is displayed that includes components but not connection lines. The Examiner points to GARNETT's FIGs. 18-20 as examples of displays of schematic diagrams using the recited topology display mode. However, while FIGs. 18-20 may slightly resemble schematic diagrams, they are not schematic diagrams but rather depictions of a placement plan for a portion of an IC, showing relative positions of cells within the IC layout. Note also that every one of the placement diagrams of FIGs. 18-20 also includes representations of interconnections to at least one of the cells. Thus GARNETT does not teach the recited topology display mode because FIGs. 18-20 are not schematic diagrams, and because each of GARNETT's FIGs. 18-20 does show representations of at least some connection lines. Also, it would not be obvious to combine DUNCAN with GARNETT's teachings relative to the display of GARNETT's FIGs. 18-20. While claim 1 and DUNCAN are concerned with the display and editing of a representation of a schematic diagram, GARNETT's teachings with respect to FIGs. 18-20 relate to the display of a representation of an IC placement plan.

## 2. Claim 22 further recites steps of

"altering the topology display mode schematic diagram in response to user input by one of adding a component representation to the schematic diagram, removing a component representation from the schematic diagram, altering a shape of a component representation in the schematic diagram, and altering a position of a component representation with the schematic diagram;

automatically altering the netlist so that its description of the schematic diagram is consistent with the altered topology display mode schematic diagram to produce an altered netlist;

generating a display of a normal display mode schematic diagram showing representations of the components of shape and relative position

within the schematic diagram in accordance with the altered netlist and showing said connection lines;

altering the normal display mode schematic diagram in response to user input by one of adding a representation of a connection line to the schematic diagram and removing a representation of a connection line from the schematic diagram; and

automatically altering the netlist so that its description of the schematic diagram is consistent with the altered normal display mode schematic diagram."

In sum, the invention allows a user to alter a netlist describing a schematic diagram by altering aspects of either a topology mode or normal mode display of the schematic diagram. The cited references do not teach this.

#### Claims 23-26

Claims 23-26 depend on claim 22 and are patentable over the cited references for similar reasons.

#### Claims 27 and 28

Claims 27 and 28 depend on claim 22 and are patentable over the cited references for similar reasons. Claim 27 further recites

"generating a display of an abstract schematic diagram showing representations of the components of shape and relative position within the schematic diagram in accordance with the altered netlist, showing a set of abstract lines interconnecting pins pairs of the component representations, wherein each abstract line interconnecting a pair of component representations represents a group of more than one of the connection lines interconnecting that pair of component representations".

In other words, the abstract display mode shows a third kind of schematic in which a group of similar connection lines connected between the same pair of components are represented by a single abstract line between component representations. This is helpful because it reduces the clutter of connection lines in a schematic while still allowing it to indicate which components are interconnected. Although two components may in fact be interconnected by a group of 32 connection lines, only one abstract line is displayed to represent the entire group. The Examiner cites GARNETT (FIG. 4, 138, 140, 144) as teaching selecting cells to be displayed, and selecting the type of net to be displayed, (col. 17, line 42 - col. 18, line 10). But nothing in GARNETT teaches anything about generating the recited abstract

display in which a single abstract line represents a group of connection lines having similar driver/load characteristics. Every line in GARNETT's placement display represents one and only one connection line (or net).

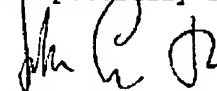
Claims 29-33

Claims 29 - 33 are patentable over the cited references for reasons similar to those discussed above in connection with claim 22.

Claim 34 and 35

Claims 34 and 35 are patentable over the cited references for reasons similar to those discussed above in connection with claims 27 and 28.

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